

Date: Tue, 27 Sep 94 04:30:36 PDT  
From: Ham-Homebrew Mailing List and Newsgroup <ham-homebrew@ucsd.edu>  
Errors-To: Ham-Homebrew-Errors@UCSD.Edu  
Reply-To: Ham-Homebrew@UCSD.Edu  
Precedence: Bulk  
Subject: Ham-Homebrew Digest V94 #286  
To: Ham-Homebrew

Ham-Homebrew Digest                      Tue, 27 Sep 94                      Volume 94 : Issue    286

Today's Topics:

    Can combine two 50MHz Tx signals?  
        High Voltage Screen Supply  
        Interdigital filters (3 msgs)  
    Need Help: measuring coil resistance  
        Pspice  
    Reuse surface mount parts? (2 msgs)  
    Specs: "RCA 400 40341" "2N6485"  
        WTB: a few NE561 pll chips

Send Replies or notes for publication to: <Ham-Homebrew@UCSD.Edu>  
Send subscription requests to: <Ham-Homebrew-REQUEST@UCSD.Edu>  
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Homebrew Digest are available  
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-homebrew".

We trust that readers are intelligent enough to realize that all text  
herein consists of personal comments and does not represent the official  
policies or positions of any party. Your mileage may vary. So there.

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Date: Mon, 26 Sep 1994 12:28:47 GMT  
From: ihnp4.ucsd.edu!dog.ee.lbl.gov!agate!howland.reston.ans.net!gatech!wa4mei!  
ke4zv!gary@network.ucsd.edu  
Subject: Can combine two 50MHz Tx signals?  
To: ham-homebrew@ucsd.edu

In article <acooneyCwpqqn.2J3@netcom.com> acooney@netcom.com (Alan Cooney) writes:  
>Greetings:

>  
>I'm looking for your suggestions on combining two or more six meter  
>signals. These are in the 100 milliwatt range, and are relatively  
>closely spaced (100-200 KHz). I need a broadband solution (untuned)  
>if possible, so that the transmitter frequencies can be varied within  
>a few hundred kilocycles or so without altering the need for a 'tune up'.  
>

>What the heck is this for, you ask? I work for a company that builds  
>remotely controlled models for the movie industry. We use six meter  
>RC equipment with one power amp and antenna per RC 'channel', and that  
>can add up to a rack of power amps and a field of antennas for a given  
>shoot. We'd like to be able to combine at least two signals before  
>amplification -- to cut the number of amps and antennas we have to fuss  
>with.

Ahem. If you really mean the 6 meter amateur band, I want the name  
of the company. Using amateur radio for commerical gain is still  
illegal.

If you mean commercial frequencies near 6 meters, then the way to  
get around the rack of amps and field of antennas is to use Wilkinson  
combiners on all the transmitters and feed them into a single linear  
amplifier. Make sure the amp is really linear though. One that will  
pass a broadcast TV signal will work. A low band CATV master distribution  
amplifier would be a good choice. That can then feed a single antenna.

Gary

--

Gary Coffman KE4ZV		You make it,		gatech!wa4mei!ke4zv!gary
Destructive Testing Systems		we break it.		emory!kd4nc!ke4zv!gary
534 Shannon Way		Guaranteed!		gary@ke4zv.atl.ga.us
Lawrenceville, GA 30244				

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Date: Mon, 26 Sep 1994 18:39:45 +0000  
From: ihnp4.ucsd.edu!dog.ee.lbl.gov!agate!howland.reston.ans.net!  
news.sprintlink.net!demon!ifwtech.demon.co.uk!G3SEK@network.ucsd.edu  
Subject: High Voltage Screen Supply  
To: ham-homebrew@ucsd.edu

Harry W3IIT wrote

>  
> I'm looking for a reference to a high voltage screen power supply for an RF high  
power amplifier.  
>I'd like a shunt regulated supply so that it has a low impedance and preferrable  
variable voltage  
>around 300 to 400 volts or so. I know that basic regulators can be made using VR  
tubes but I'm  
>looking for something more robust and with some adjustment capability.

There are two in the \_VHF/UHF\_DX\_Book\_ (from ARRL) which were designed  
for 4CX250/350s and similar. They use op-amp regulation with either  
bipolar or power MOSFET shunt elements, and are well proven designs with  
good protection against short-circuits and flashover. Regulation is

+100mV or better - more than you'll ever need.

I've had a similar MOSFET design running for about 3 years which also has opto-coupled overcurrent shutdown. There's a new PCB for this 'in beta' which will be configurable for voltages from 200 up to about 600, in any grounding configuration, and should be a universal retrofit for existing screen supplies using VR tubes and zener stacks. More details later...

(Excuse the boost for the book, but that's where several of us assembled a lot of good information that wasn't easily available anywhere else.)

73 from Ian G3SEK	Editor, _The_VHF/UHF_DX_Book_
Abingdon, England	
g3sek@ifwtech.demon.co.uk	"In Practice" columnist for RadCom (RSGB)

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Date: 26 Sep 1994 12:05:00 GMT  
From: ihnp4.ucsd.edu!swrinde!howland.reston.ans.net!math.ohio-state.edu!  
jussieu.fr!news-rocq.inria.fr!univ-lyon1.fr!elendir@network.ucsd.edu  
Subject: Interdigital filters  
To: ham-homebrew@ucsd.edu

Hi !

Does anybody out here have any design formulae to build narrow-band interdigital filters ?

Typically, I need a filter centered on about 1297 MHz with more than 90 dB insertion loss at 1291 MHz. The French SHF repeater shift is - 6 MHz.

Thanks,  
Vincent

--  
F1RCS - Worldwide Friendship through Amateur Radio  
ENST, Ecole Nationale Supérieure des Telecommunications, Paris

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Date: 26 Sep 1994 13:21:58 GMT  
From: news2.near.net!usenet.elf.com!rpi!marcus.its.rpi.edu!lascal@yale.arpa  
Subject: Interdigital filters  
To: ham-homebrew@ucsd.edu

Elendir (elendir@enst.fr) wrote:

: Hi !

: Does anybody out here have any design formulae to build narrow-band inter-  
: digital filters ?

: Typically, I need a filter centered on about 1297 MHz with more than 90 dB  
: insertion loss at 1291 MHz. The French SHF repeater shift is - 6 MHz.

Wow, holy unloaded Q batman!

anyway, there supposedly is a design program out there that  
was published... I think it's written in basic. I don't have it  
personally though.

-L

--

Lance Lascari WS2B <lascal@rpi.edu> Senior EE @ Rensselaer Polytechnic Inst.  
Mount Greylock Expeditionairy Farce Secret agent #52,342

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Date: Mon, 26 Sep 1994 12:32:47 GMT

From: ihnp4.ucsd.edu!dog.ee.lbl.gov!agate!howland.reston.ans.net!gatech!wa4mei!  
ke4zv!gary@network.ucsd.edu

Subject: Interdigital filters

To: ham-homebrew@ucsd.edu

In article <366ddd\$9q@cismsun.univ-lyon1.fr> elendir@enst.fr (Elendir) writes:

> Hi !

>

> Does anybody out here have any design formulae to build narrow-band inter-  
> digital filters ?

> Typically, I need a filter centered on about 1297 MHz with more than 90 dB  
> insertion loss at 1291 MHz. The French SHF repeater shift is - 6 MHz.

Ouch! That's tough. To get that much rejection, your insertion loss on  
the desired receive channel is going to be really high, probably as much  
as 10 db. I doubt that will be acceptable. You should stick to standard  
cavity notch duplexers instead.

Gary

--

Gary Coffman KE4ZV		You make it,		gatech!wa4mei!ke4zv!gary
Destructive Testing Systems		we break it.		emory!kd4nc!ke4zv!gary
534 Shannon Way		Guaranteed!		gary@ke4zv.atl.ga.us
Lawrenceville, GA 30244				

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Date: Mon, 26 Sep 1994 17:15:05 GMT  
From: ihnp4.ucsd.edu!dog.ee.lbl.gov!news.cs.utah.edu!cs.utexas.edu!  
howland.reston.ans.net!europa.eng.gtefsd.com!ceylon!news2.near.net!  
zcias2.ziff.com!tomkreyche.zdlabs.ziff.com!user@network.  
Subject: Need Help: measuring coil resistance  
To: ham-homebrew@ucsd.edu

Dear homebrewers,

I'm working on a commerical seismometer (for measuring distant earthquakes) and don't understand some coil phenomena.

The instrument has an coil of very fine wire (about #44) wound on a hollow plastic core, probably >> 5000 turns, about 1.5 inches in diameter. Horizontal earth movement causes this coil to move in and out of a strong magnet, which generates a changing voltage.

If I remove the magnet and measure the coil resistance, it shows a rock steady 48.1 k ohms.

With the magnet in place around the coil and with the coil locked so it can't move, the coil resistance bounces slowly betwee 47.6k and 48.5k.

The measurements are made at a stable room temperature using a fluke 75 multimeter. I imagine the meter works by running a small current though the DUT and measuring voltage across a resistor, so naturally any change in current in the DUT will play hell with the measurement.

Why does the resistance appear to change with the magnet in place? Is it simply due to very small thermal movements, even though the coil is locked? or is something else going on, like changes in the earth's magnetic field or something more mundane?

Thanks, Tom KG6YJ

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Date: 27 Sep 94 00:19:19 GMT  
From: news-mail-gateway@ucsd.edu  
Subject: Pspice  
To: ham-homebrew@ucsd.edu

>Do any of you use pspice on a Mac? I downloaded a copy but am unable to  
>get it to run. My system crashes..with a bad F-line instruction message.

>Any ideas?  
>Thanks...John

It requires an FPU to run and I dont think you have one.

mail me direct if you want to talk about it!

Kevin Purcell, N7WIM / G8UDP            xenolith@halcyon.com            206/649-6489  
Seattle dBug Mac Developers SIG organiser

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Date: Mon, 26 Sep 1994 13:01:21 +0000  
From: ihnp4.ucsd.edu!dog.ee.lbl.gov!agate!howland.reston.ans.net!  
news.sprintlink.net!demon!ifwtech.demon.co.uk!G3SEK@network.ucsd.edu  
Subject: Reuse surface mount parts?  
To: ham-homebrew@ucsd.edu

> Fred McKenzie (fred-mckenzie@ksc.nasa.gov) wrote:

> >

> : If ordinary solder (63-37 tin-lead) is used, the lead can amalgamate with  
> : the silver that is fired onto the component. The result is that you can  
> : no longer solder to it. You must use something like a "silver-saturated"  
> : solder, or the appropriate solder paste. (Note: this is not the same as  
> : "silver solder", which has a much higher melting point.)

>

... or to put it another way, ordinary solder dissolves the silver out of the  
plating on the component. Obviously this phenomenon only affects ceramic-bodied  
compnents such as Rs, Cs and Ls. ICs and other devices with solid metal  
legs can be resoldered for as long as they hold together :-)

> Wow, I never heard that before. We use standard tin-lead solder all the  
> time around here for soldering SMT devices.

Well, yes - ordinary solder is OK for first-time use of components, but  
each repeated application to reclaimed components (and that includes 'cleaning'  
old solder off them) makes the ceramic-metal connections less reliable.

I never re-use chip Rs (they only cost pennies), and always suspect the  
joint continuity of re-used chip Cs.

Regarding the hot air / blowtorch method of stripping boards, GM4ANB recommends  
doing it over a bowl of cold water. If the components (ICs in particular) are  
sealed as they should be, they'll benefit from the immediate cooling.

73 from Ian G3SEK                                | Editor, \_The\_VHF/UHF\_DX\_Book\_  
Abingdon, England                                |

g3sek@ifwtech.demon.co.uk | "In Practice" columnist for RadCom (RSGB)

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Date: Mon, 26 Sep 1994 12:22:14 GMT  
From: ihnp4.ucsd.edu!agate!howland.reston.ans.net!gatech!wa4mei!ke4zv!  
gary@network.ucsd.edu  
Subject: Reuse surface mount parts?  
To: ham-homebrew@ucsd.edu

In article <CwnKBu.1MB@srigenprp.sr.hp.com> alanb@hpnmarb.sr.hp.com (Alan Bloom) writes:

>Fred McKenzie (fred-mckenzie@ksc.nasa.gov) wrote:

>[Re: soldering surface-mount devices]

>

>: If ordinary solder (63-37 tin-lead) is used, the lead can amalgamate with  
>: the silver that is fired onto the component. The result is that you can  
>: no longer solder to it. You must use something like a "silver-saturated"  
>: solder, or the appropriate solder paste. (Note: this is not the same as  
>: "silver solder", which has a much higher melting point.)

>

>Wow, I never heard that before. We use standard tin-lead solder all the  
>time around here for soldering SMT devices.

Heh, heh, maybe that's why Tektronix gear is so much more reliable.  
They used to include a little role of silver bearing solder in  
every instrument so the tech could fix it right.

(In the old days that was because of the silver bearing contacts on  
their ceramic terminal strips, but it applies to modern SMDs too.)

It's true that using ordinary solder can cause the silver to leach  
out of the contacts on SMD components. That can lead to connection  
failures. That's primarily an issue with leadless SMDs like caps  
and resistors. It doesn't apply to leaded ICs. Their leads are  
tin plated, and solder fine with ordinary solder.

Gary

--

Gary Coffman KE4ZV		You make it,		gatech!wa4mei!ke4zv!gary
Destructive Testing Systems		we break it.		emory!kd4nc!ke4zv!gary
534 Shannon Way		Guaranteed!		gary@ke4zv.atl.ga.us
Lawrenceville, GA 30244				

-----  
Date: 26 Sep 1994 11:26:01 -0400  
From: newstf01.cr1.aol.com!newsbf01.news.aol.com!not-for-mail@uunet.uu.net

Subject: Specs: "RCA 400 40341" "2N6485"  
To: ham-homebrew@ucsd.edu

My meager selection of data books do not have any information on the the following:

RCA 400 or 40341 (device has both of these markings)

2N6485 which is a tiny metal cased 6-pin device.

The RCA device was pulled out of a "50 MHz oscillator" purchased at a hamfest for \$1. The thing was cold soldered (no wonder it didn't work).

The other device was pulled from a PC board of some type.

Thanks for any answers for these two--I would like to use the RCA device at two meters if it is rated for that high a frequency.

72,73, jim n0oct

Date: 26 Sep 1994 13:51:09 GMT  
From: ihnp4.ucsd.edu!usc!howland.reston.ans.net!math.ohio-state.edu!  
magnus.acs.ohio-state.edu!csn!jabba.cybernetics.net!cybernetics.net!  
jbbrown@network.ucsd.edu  
Subject: WTB: a few NE561 pll chips  
To: ham-homebrew@ucsd.edu

Am trying to build a project requiring a Signetics NE561. I am unaware of any substitute with the same set of features. Can anyone spare 2-4 pieces from their old parts bins?

Thanks, Jeff

--  
Jeff Brown                      jbrown@cybernetics.net

Date: Mon, 26 Sep 1994 17:43:08 GMT  
From: ihnp4.ucsd.edu!dog.ee.lbl.gov!news.cs.utah.edu!cs.utexas.edu!  
howland.reston.ans.net!EU.net!sun4nl!geertj@network.ucsd.edu  
To: ham-homebrew@ucsd.edu

References <CwnKBu.1MB@srgenprp.sr.hp.com>, <fred-mckenzie-2309941514220001@k4dii.ksc.nasa.gov>,



<780726403wnr@ifwtech.demon.co.uk>rtj  
Subject : Re: Reuse surface mount parts?

In <780726403wnr@ifwtech.demon.co.uk> G3SEK@ifwtech.demon.co.uk (Ian G3SEK)  
writes:  
>Regarding the hot air / blowtorch method of stripping boards, GM4ANB recommends  
>doing it over a bowl of cold water. If the components (ICs in particular) are  
>sealed as they should be, they'll benefit from the immediate cooling.

Is that true? I fear that the temperature shock is likely to cause  
micro-cracks in the plastic body.

Geert Jan

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End of Ham-Homebrew Digest V94 #286  
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